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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,846	03/07/2002	Beom-Wook Lee	47769/DBP/Y35	9449

23363 7590 09/30/2003

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EXAMINER

THORNTON, YVETTE C

ART UNIT PAPER NUMBER

1752

DATE MAILED: 09/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,846

Applicant(s)

LEE ET AL.

Examiner

Yvette C. Thornton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other:

DETAILED ACTION

This is written in reference to application number 10/092846 filed on March 7, 2002 and published as US 2003/0054285 A1 on March 20, 2003

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The Information Disclosure Statement filed on March 7, 2002 has been entered and fully considered.

Specification

3. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b). The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 150 words. The abstract should not exceed 25 lines of text.

Claim Objections

4. Claims 1-11 are objected to because of the following informalities: The claims as written contain a phrase in parenthesis, which are improper. See lines 8-10 of claim 1; lines 6-8 of claim 3; lines 10-12 of claim 5; and lines 8-10 of claim 9. Appropriate correction is required.

Claim Interpretation

5. The examiner has interpreted the phrase "represented by" in instant claim 3 and 9 to be closed language wherein the polymer can have only monomers selected from the four

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represented as "a", "b", "c" and "d" within the claimed range and satisfying the equation of $a+b+c+d=1$.

Claim Rejections - 35 USC § 112, 1st paragraph

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a monomer of formula (1) or (2), does not reasonably provide enablement for compounds having a -O-O- bond. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use all embodiments of the invention commensurate in scope with these claims. The claims as written provide support for a -O-O- bond (i.e., when $R=O$; $b=0$; and $R'=O$). The specification fails to teach one of ordinary skill in the art how to make and use such a compound.

Claim Rejections - 35 USC § 112, 2nd paragraph

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

9. Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims as written fail to provide a definition for R8-11. The examiner believes that the definition for R3 to R7 (l. 16) should refer to R8-R11 (see claim

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3). For the purposes of examination the examiner has applied the definition provided for R3 to R7 in line 16 to the claimed substituents R8 to R11.

Furthermore, claims 1-2 as written provide both a narrow and broad limitation for R3. Appropriate correction is requested.

10. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims as written provide support for a -O-O- bond (i.e., when $R=O$; $b=0$; and $R'=O$). The specification fails to teach one of ordinary skill in the art how to make and use such a compound.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

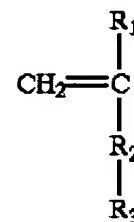
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 2002/0143130

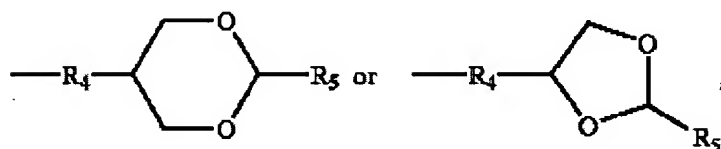
A1. Although the conflicting claims are not identical, they are not patentably distinct from

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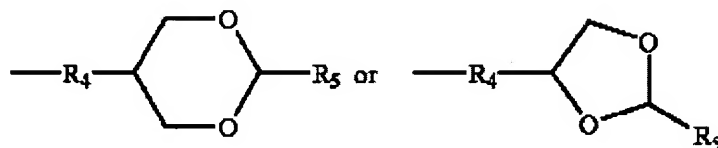
each other because both invention pertain to a monomer having the formula

wherein R1 is H or CH3; R2 is $(\text{R})_\alpha(\text{CH}_2)_\beta\text{R}'$ or $(\text{R})_\alpha((\text{CH}_2)_m\text{O})_\gamma\text{R}'$; R3 is



; R4 is a saturated or unsaturated C1-5

alkyl, a C1-5 ether or a C1-5 carbonyl; and R5 is a saturated or unsaturated C1-5 alkyl, a C1-5 ether or a C1-5 carbonyl. More specifically claim 2 of the published application sets forth



that R1 is H; R2 is COO; R3 is

where

R4 is CH₂CH₂; and R5 is CH₂CH₃CH₃. It is the examiner's position that the claimed formula for R3 is structurally analogous to those claimed in instant claims 1 for R3 (last two structures). Claims 3-5 claim a copolymer comprising claimed formula (2), which meets the limitations of instant claims 3-4. Furthermore, claims 6-8 meet the limitations of instant claims 5-7 and 9-10. It would have been obvious to one of ordinary skill in the art, as

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directed by the claims of US 2002/0143130 A1, to make and use a monomer having the formula (2) to make a polymer, which is then used in a photoresist composition.

The examiner notes that the claims of the instant application do not require a monomer of formula (2) to be chosen (i.e., $b=0$, claim 3).

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

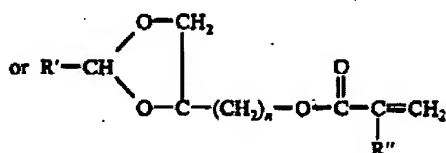
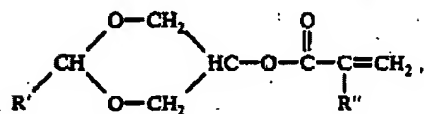
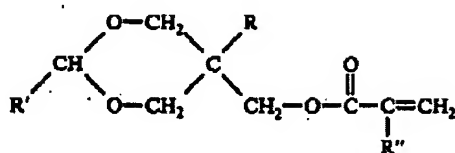
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Zey et al. (US 4076727 A). Zey teaches a process for preparing a new composition of matter having

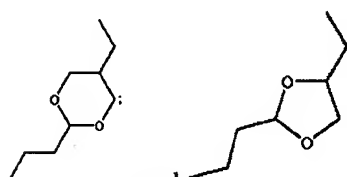
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the general formulae:

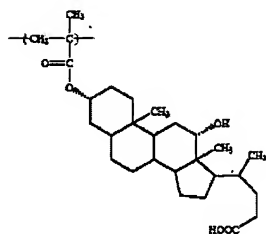
where R is -CH₃ or CH₂-CH₃; R'is H, C1-3 alkyl or C1-3 halogenated alkyl; R'' is H or CH₃ and n is 1-4 (abstract). It is the

examiner's position that when R'' is H; R' is C3 alkyl in the second compound and when R''

is H; R' is C3 alkyl and n=1 the limitations of instant claim 2 are met wherein R₃ is

and respectively.

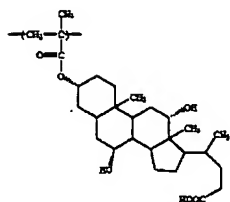
15. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Aoai et al. (US 6042991 A). Synthesis example 36 of Aoai exemplifies the synthesis of monomer corresponding to constitutional repeating unit (a'7), which has the structure,:



(c. 101, l. 65-c. 102, l. 20). It is the examiner's position that the said

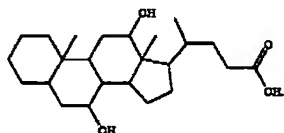
monomer meets the limitations of claimed formula (2). Repeating unit (a'6) having the

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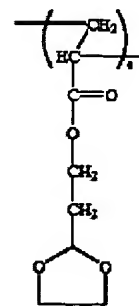
structure (c. 41):

meets the limitations of instant claim 2 wherein R4 is



COO and R5 is

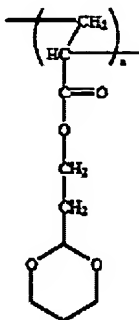
Claims 1-5, 7-11 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Jung et al. (US 6482565 B1). Jung teaches a photoresist composition comprising (i) a photoresist polymer, (ii) a photoresist crosslinker of formula 1, (iii) a photoacid generator and (iv) an organic solvent (c. 2, l. 45-50). The photoresist according to the taught invention may be a homopolymer of formula 1; however it is more preferable that the crosslinker is a copolymer of (i) the compound represented by formula 1; and (ii) one or more compounds selected from the group consisting of acrylate, methacrylate and maleic anhydride as the second comonomer (c. 3, l. 46-53; see formula 3 and 4; c. 4, l. 65-c. 5; l. 1)). Jung



exemplifies in example 9 a crosslinking homopolymer of chemical formula 12:

(cl. 11, l. 1-15). Example 10 exemplifies the synthesis of a homopolymer of chemical formula

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13: (c. 11, l. 19-40). Although not exemplified, one of ordinary skill in the art would readily envisage a composition comprising a homopolymer of either formula 12 or 13, a photoacid generator, an organic solvent and a photoresist polymer. Furthermore, one of ordinary skill would also readily envisage a composition wherein the exemplified crosslinker of formula 12 or 13 further comprises an acrylate or a methacrylate comonomer since Jung teaches that this combination is more preferable. It is the examiner's position that an acrylate or methacrylate monomer unit would meet the limitations of claimed monomer unit "d" of instant claims 3-4 and 9-10 wherein R16 is a single bond and R17 is COOH. See also c. 6, l. 5-45 and ex. 11.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

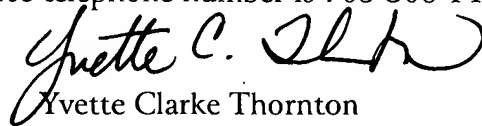
- Kim et al. (US 6258508 B1) pertaining to a polymer using norbornene monomers with derivatives of cholic acid, deoxycholic acid or lithocholic acid and their use thereof.
- Collins et al. (US 5286808 A) pertaining to elastomeric crosslinked poly(1,3-dioxlane).
- Yang et al. (US 4975519 A) pertaining to novel polyacetal terpolymers of trioxane and alpha, alpha- and alpha, beta-isomers of glycerol formal.
- Reinhardt et al. (US 3256254 A) pertaining to oxycarbocyclic ester compositions containing aryl peroxides and tertiary aromatic amines, polymerizable in air.

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 8-6:30.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet C. Baxter can be reached on 703-308-2303. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.


Yvette Clarke Thornton
Junior Examiner
Art Unit 1752

yct
September 16, 2003